

**Comments of the
RUBBER MANUFACTURERS ASSOCIATION**

On

**Request for Comments;
National Academy of Science Study and Future Fuel
Economy Improvement, Model Year 2005-2010**

Docket No. 2002-11419

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The Rubber Manufacturers Association ("RMA") is the primary trade association representing the interests of the tire and rubber industry in the United States. RMA's membership includes all of the country's major tire manufacturers: Bridgestone/Firestone Americas Holding, Inc., Continental Tire N.A., Cooper Tire & Rubber Company, The Goodyear Tire & Rubber Company, Michelin North America, Inc., Pirelli Tire North America, and Yokohama Tire Corporation.

Tires impact fuel efficiency in motor vehicles. The tire manufacturing industry has made great strides improving rolling resistance and contributing to the overall fuel efficiency of the entire range of motor vehicles. As NHTSA proceeds with new testing standards for passenger and light truck tires as required by the TREAD Act (*NHTSA Docket No. 8011*) it becomes difficult to judge what new tire design and performance requirements will be in place for the industry in the future. In order to design tires to the new testing and performance specifications, the rolling resistance characteristics of certain tires may change. However, at this juncture, it is impossible to specify what, if any, changes might occur. With this uncertainty RMA cannot project specific improvements in rolling resistance. Until the new tire testing and performance standards are finalized, any future decisions on rolling resistance would be based on suppositions alone.

However, as the Agency is aware appropriate tire inflation pressure greatly improves fuel efficiency. The promotion of appropriate tire inflation pressure will go further to reduce rolling resistance in tires than any other single action. According to the U.S. Department of Energy consumers can improve gas mileage by around 3.3 percent by keeping tires inflated to the proper pressure. Underinflated tires can lower gas mileage

by 0.4 percent for every 1 psi drop in pressure of all four tires.¹ Frequently, underinflated tires cause fuel consumption to increase by 6%. Improved fuel efficiency would be well served by efforts to promote and increase appropriate tire inflation pressure.

Below RMA has reviewed data that demonstrates the importance of appropriate tire inflation pressure in fuel efficiency and reducing rolling resistance. None of this data is new to NHTSA. However, many vehicles in use in the United States continue to have underinflated tires. NHTSA has recognized in its own study that about one-third of the light trucks and one-quarter of the passenger car tires had at least one tire that was eight psi or more underinflated. RMA believes that these estimates are conservative since the air pressure was measured when the tires were hot. Considering the information available to the Agency, RMA firmly believes that NHTSA should take every opportunity to promote appropriate tire inflation pressure as an overall benefit for the American consumer.

A recently commissioned study by RMA found that only 11 percent of the drivers surveyed had checked their tire inflation pressure correctly during the past month. Furthermore, 24 percent of the people surveyed thought underinflated tires were best for a long trip in a fully loaded vehicle. There is a long way to go before the majority of the public takes tire inflation pressure seriously.

NHTSA joined with RMA in promoting appropriate tire inflation pressure during National Tire Safety Week from April 29 – May 4. RMA urges NHTSA to continue these activities through the regulatory process. Low tire inflation pressure **can** lead to tire failure. Low tire inflation pressure **does** lead to an increase in rolling resistance and low tire inflation pressure **does** lower fuel economy. RMA urges NHTSA to aggressively promote appropriate tire inflation pressure through the Agency's consideration of fuel efficiency and other important issues.

¹ Source: U.S. Department of Energy web site: (<http://www.fueleconomy.gov/feg/maintain.shtml>.)

FIGURE 1

Figure 1 demonstrates that in large luxury sedans or mini-vans fuel economy drops precipitously as the inflation pressure falls below 30 psi.

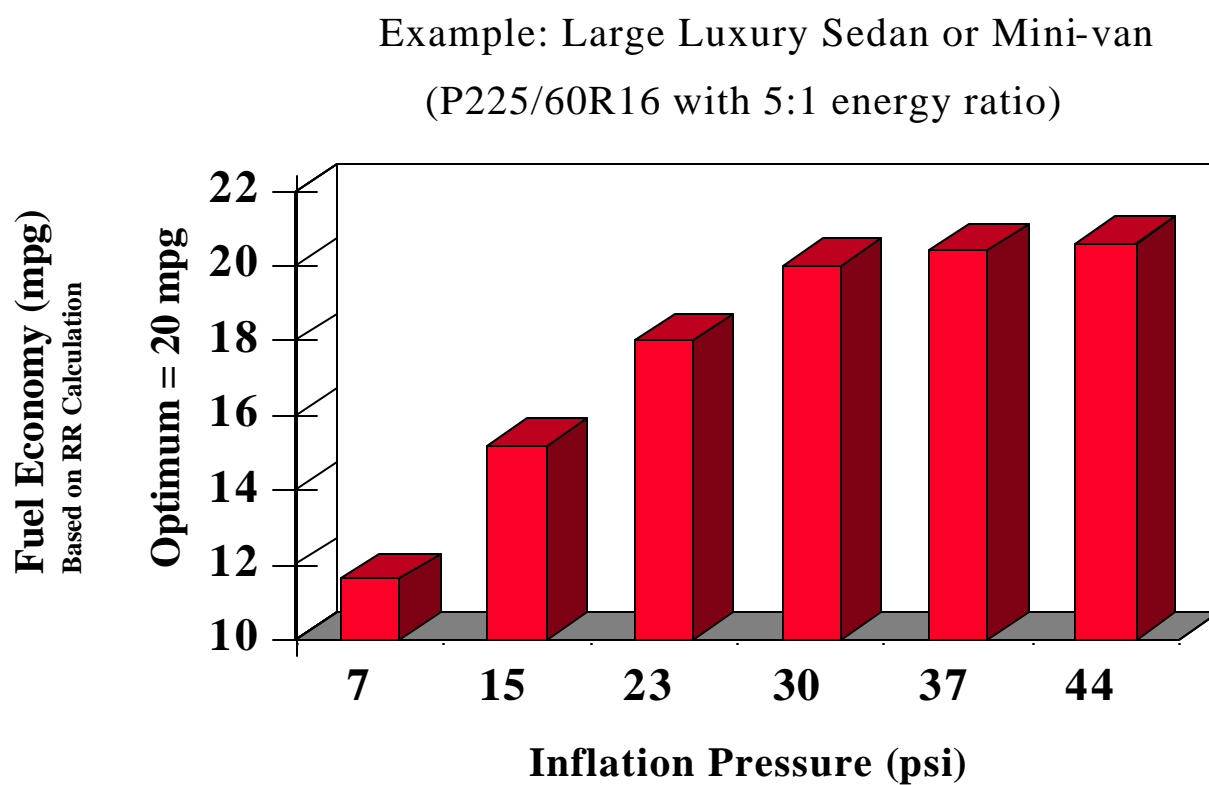


FIGURE 2

As NHTSA is aware, the standard SAE test J1269 for rolling resistance uses different air pressures. It is therefore possible to compute the percent change in rolling resistance for a change in inflation as shown below in Figure 2. By analyzing test data charted on approximately 4,500 tire test samples with various levels of rolling resistance, a gradient for inflation pressure change becomes apparent. The slope of this data suggests that for tires typically in the 8 –14 pound range, a drop of one psi yields a 1.1 percent increase in rolling resistance. If we were to use the general rule of 4 percent change in rolling resistance gives a 1 percent change in fuel economy, Figure 2 would indicate that a 3.6 psi drop in inflation results in a one percent increase in fuel consumption. Although the four to one rule can not be applied in all cases, it does reflect benefits resulting from proper tire pressure maintenance.

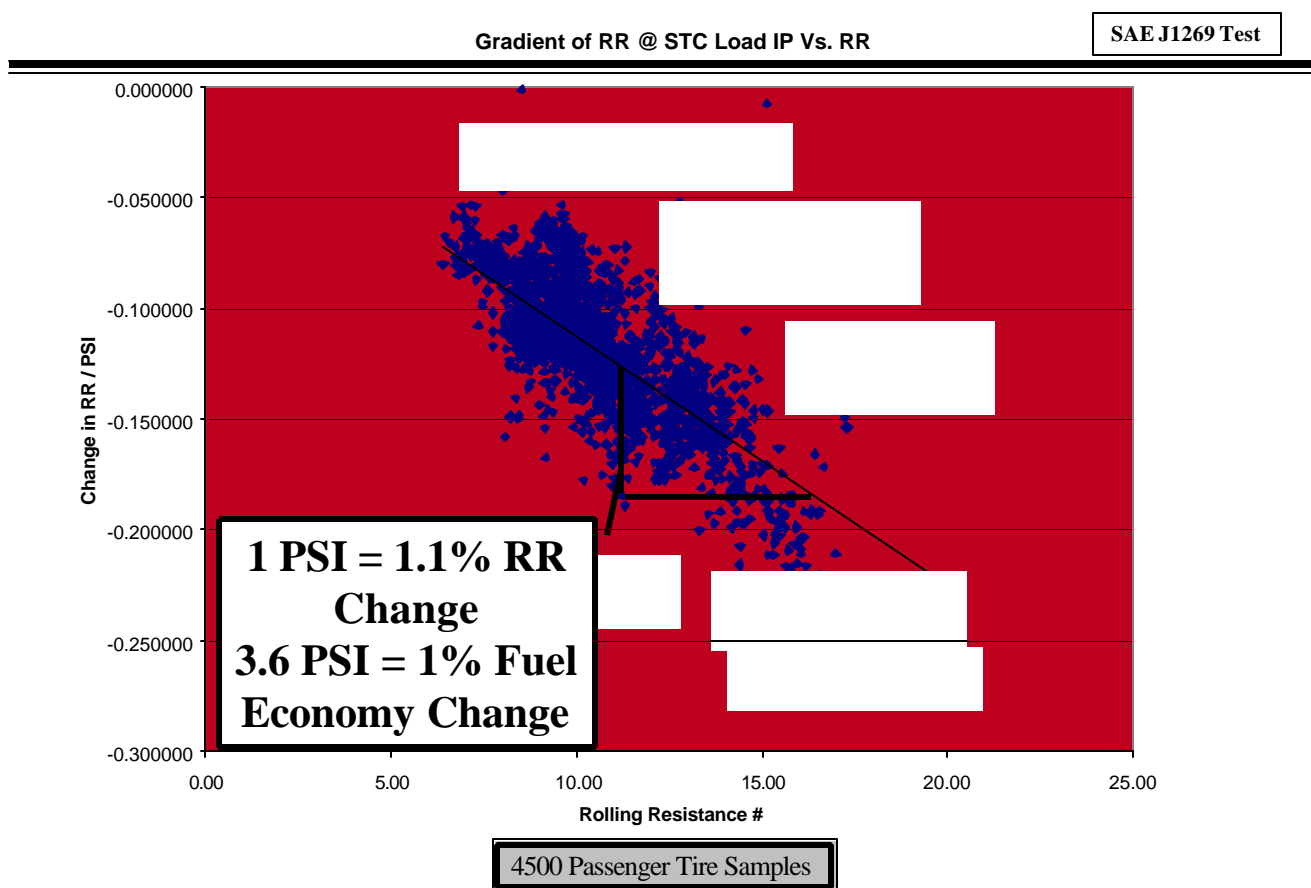


FIGURE 3

As demonstrated in Figure 3 a drop of 5 psi in a typical passenger radial tire increases rolling resistance by 10%. Furthermore, the rate of rolling resistance loss increases as lower and lower air pressures occur.

